Listing of Claims:

12. (New) An elliptical rotary internal combustion motor [[~~with internal combustion~~]] comprising:

(a) a motor housing (1) having a cylindrical ring shape; said motor housing (1) further comprising:

at least one intake port (15);

at least one spark plug opening (14);

at least one exhaust port (16) [[~~,~~]] ;

a regulating sub-pressure opening (19) [[~~for regulating sub-pressure~~]];

[[~~an~~]] a flushing and cooling opening (24) [[~~for flushing and cooling~~]];

a cooling chamber (21);

wherein said at least one intake port (15); said at least one spark plug opening (14); said at least one exhaust port (16) [[~~,~~]] said regulating sub-pressure opening (19) [[~~for regulating sub-pressure~~]]; said flushing and cooling opening (24) [[~~for flushing and cooling~~]] and said cooling chamber (21) are [[~~situated~~,]] positioned on circumference in [[~~its~~]] a vertical plane of symmetry, from each other at distance relative to initial position of a motor mechanism and according to kinematic-geometric characteristics;

(b) an internal space cylindrical rotor (2) rotating within said motor housing (1); said an internal space cylindrical rotor (2) further comprising:

a connecting axle (9);

an oscillating lever (8);

a connecting rod (7);

a satellite gears.(12);

swinging bearing rings (13);

internal space cylindrical rotor openings (23, 25);

shafts (17, 20); and

a radial placed work cylinder (3); said radial placed work cylinder (3) further comprising:

a piston (6) having a longitudinal axis being perpendicular to an axis of a center of said elliptical rotary motor; said piston (6) placed inside said radial placed work cylinder (3) connected to connecting rod (7);

a work cylinder cap (4) having on a bottom side flattened surface and a ring shaped groove, being situated on a top side of said radial placed work cylinder (3) for closing said radial placed work cylinder (3), and having sealant grooves (5) on an upper surface to prevent leaking of fuel-air mixture and exhaust gases;

wherein said work cylinder cap (4) [[~~having~~]] has an upper cylinder shaped surface with a radius equal to said internal space cylindrical rotor (2), and in a vertical axis coaxial with a longitudinal axis of said radial placed work cylinder (3) [[~~having~~]] has an opening in the middle of said work cylinder;

wherein said piston (6) includes a dome shape matching an inner portion of said work cylinder cap (4), at least one groove for piston rings and moves cyclically as said internal space cylindrical rotor (2) rotates;

wherein said internal space cylindrical rotor (2), which is cylinder shaped, has an opening on an upper portion for receiving said radial placed work cylinder (3) having a longitudinal axis being perpendicular to the longitudinal axis of said internal space cylindrical rotor (2), and openings to the left and to the right side of

said radial placed work cylinder (3) for cooling; and has an opening on lower portion of said internal space cylindrical rotor (2) for receiving said satellite gears (12), said connecting axle (9), said oscillating lever (8) and said connecting rod (7); and

wherein on [[a]] the top side of said opening of said radial placed work cylinder (3), being perpendicular to the axis of said radial placed work cylinder (3), said flattened surface is for receiving said work cylinder cap (4) to close said radial placed work cylinder (3);

(c) inner tooth gears (11) being on lateral sides of said [[~~stator~~]] motor housing (1);

wherein said connecting axle (9) [[~~to which are~~]] connected said oscillating lever (8) and said connecting rod (7), is [[~~placed~~]] positioned in said opening on said lower portion of said internal space cylindrical rotor (2), under said radial placed work cylinder (3);

wherein said connecting axle (9) is with both ends connected to said satellite gears (12) [[~~;~~]] such that every point on a longitudinal axis of said connecting axle (9) during rotation of said internal space cylindrical rotor (2) moves cyclically along imagined closed ellipse curve defining mode of change of displacement of said work chamber of said radial placed work cylinder (3) as a function of change of angle of rotation of said internal space cylindrical rotor (2);

wherein said connecting rod (7) and said oscillating lever (8) are connected via needle bearing at a central portion of said connecting axle (9);

wherein said oscillating lever (8) [[~~has one end , which is shackle,~~]] shackingly connected to said connecting axle (9) on the left and on the right side of said connecting rod (7) on one end, and on the other end, [[~~of~~]] said

oscillating lever (8) has a pin (10) connected to the internal space cylindrical rotor opening (23) [[~~of said internal space cylindrical rotor (2)~~]];

wherein a distance between centers of openings of said oscillating lever (8) defines a slant of said imagined ellipse, a change of displacement of work chamber of said radial placed work cylinder (3), a different duration of work strokes, and simultaneously defines a starting position of motor mechanism;

wherein said satellite gears (12) are placed in said lower portion of said opening of said internal space cylindrical rotor (2) where said satellite gears (12) have, on the lateral sides, an opening located outside of the centers and an abeam tooth profile axis of their teeth, where position of said openings defines displacement of work chamber of the said elliptical rotary motor with internal combustion and where said openings serve for connection between said satellite gears (12) via said connecting axle (9) so said satellite gears (12) are parallel connected in position towards each other as in mirror image at distance which is sufficient for placement of said oscillating lever (8) and said connecting rod (7); [[~~and~~]]

wherein said satellite gears (12) have in centers of [[~~their~~]] the lateral sides an opening suited for resting on sleeve of said swinging bearing rings (13) where said swinging bearing rings (13) make possible rotation of said satellite gears (12) around their own axis and dictate that during rotation of said internal space cylindrical rotor (2); [[~~and~~]]

wherein said satellite gears (12) cyclically oscillate relative to rotating of said longitudinal axis of said radial placed work cylinder (3) [[~~therefore~~]] to define a position of said internal space cylindrical rotor (2) and said radial placed work

cylinder (3) and length of stroke of said piston (6) relative to said motor housing (1);

wherein said shafts (17, 20) of said internal space cylindrical rotor (2), being on the lateral sides of said radial placed work cylinder (3) are coaxial with t he longitudinal axis and form integral said internal space cylindrical rotor (2);

wherein said internal space cylindrical rotor openings (23, 25) [[~~of said internal space cylindrical rotor (2) having~~]] have a position relative to the center of rotation to define mode of change of displacement in said radial placed work cylinder (3) during work cycle;

wherein said inner tooth gears (11) are fastened to said motor housing (1) having center of pitch diameter offset relative to said longitudinal axis of said motor housing (1) by the horizontal and vertical eccentricity and [[~~where~~]] wherein said inner tooth gears (11) are geared in the ratio i=2 to said satellite gears (12) to define kinematic-geometric characteristics of said motor mechanism; and

d) deck-lids (18);

wherein said swinging bearing rings (13) have a ring shape with an inner diameter for mounting on said deck-lids (18); sleeves are relative to the centers [[,]] and positioned at the distance corresponding to a base half diameter of said satellite gears (12);

where said longitudinal axis of said swinging bearing rings (13) [[~~are~~]] is parallel to the axis of said sleeves which carry said satellite gears (12), and assures [[~~their~~]] a simultaneous rotating and oscillating motion;

wherein said deck-lids (18) at the centers have openings for bearings of said shaft (17) and said shaft (20) of said internal space cylindrical rotor (2); [[~~and~~]]

wherein said deck-lids (18) on [[~~the~~]] inner sides have eccentrically situated hubs, whose longitudinal axes are offset relatively to said longitudinal axis by the horizontal and vertical eccentricity as with said inner tooth gears (11); and [[~~on which are situated~~]]

wherein said swinging bearing rings (13) positioned on said deck-lids (18) [[, ~~which~~]] define a circular trajectory of said satellite gears(12)..

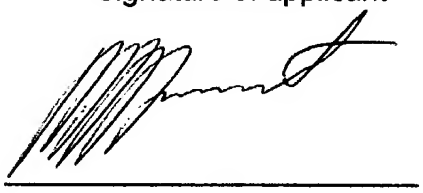
13. (New) The elliptical rotary internal combustion motor according to claim 12 said motor housing (1) further comprising a fuel injector positioned in at least one opening (14) when said elliptical rotary internal combustion motor with internal combustion is [[~~operating as~~]] a diesel internal combustion motor.

14. (New) The elliptical rotary internal combustion motor according to claim 12, wherein n interconnected elliptic rotary internal combustion motors, serially connected in said axis of rotation of said internal space cylindrical rotor (2) and said longitudinal axis of said radial placed work cylinder (3) phase offset by angle 360/n.

Remarks/Arguments:

In response to Office Action (Ex parte Quayle) sent 07/01/2008 Abstract and Claims 12-14 are amended according to corrections indicated in this office action.

Signature of applicant



ABSTRACT:

A method and an apparatus [[~~consisting of~~]] include a motor housing (1) [[~~within which rotates~~]] , an internal space cylindrical rotor (2) rotating together with radial placed work cylinder (3) and piston (6), [[~~which via~~]] a connecting rod (7) and a connecting axle (9) connected with oscillating lever (8), and [[~~which~~ via]] a pin (10) to transfer[[~~s~~]] rotary moment to the internal space cylindrical rotor (2), [[~~i.e. to~~]] and output shafts (17) and (20). [[~~At the same time~~]] Simultaneously, connecting rod (7), via connecting axle (9) by its own motion, moves satellite gears (12), which off-center mounted swinging bearing rings (13) and symmetrically geared to off-center mounted inner tooth gears (11), define position of radial placed work cylinder (3) being relative to two outer dead centers and two inner dead centers.

ABSTRACT:

A method and an apparatus [[~~consisting of~~]] include a motor housing (1) [[~~within which rotates~~]] , an internal space cylindrical rotor (2) rotating together with radial placed work cylinder (3) and piston (6), [[~~which via~~]] a connecting rod (7) and a connecting axle (9) connected with oscillating lever (8), and [[~~which~~ via]] a pin (10) to transfer[[~~s~~]] rotary moment to the internal space cylindrical rotor (2), [[~~i.e. to~~]] and output shafts (17) and (20). [[~~At the same time~~]] Simultaneously, connecting rod (7), via connecting axle (9) by its own motion, moves satellite gears (12), which off-center mounted swinging bearing rings (13) and symmetrically geared to off-center mounted inner tooth gears (11), define position of radial placed work cylinder (3) being relative to two outer dead centers and two inner dead centers.

Listing of Claims:

12. (New) An elliptical rotary internal combustion motor [[~~with internal combustion~~]] comprising:

(a) a motor housing (1) having a cylindrical ring shape; said motor housing (1) further comprising:

at least one intake port (15);

at least one spark plug opening (14);

at least one exhaust port (16) [[~~,~~]] ;

a regulating sub-pressure opening (19) [[~~for regulating sub-pressure~~]];

[[~~an~~]] a flushing and cooling opening (24) [[~~for flushing and cooling~~]];

a cooling chamber (21);

wherein said at least one intake port (15); said at least one spark plug opening (14); said at least one exhaust port (16) [[~~,~~]] said regulating sub-pressure opening (19) [[~~for regulating sub-pressure~~]]; said flushing and cooling opening (24) [[~~for flushing and cooling~~]] and said cooling chamber (21) are [[~~situated~~,]] positioned on circumference in [[~~its~~]] a vertical plane of symmetry, from each other at distance relative to initial position of a motor mechanism and according to kinematic-geometric characteristics;

(b) an internal space cylindrical rotor (2) rotating within said motor housing (1); said an internal space cylindrical rotor (2) further comprising:

a connecting axle (9);

an oscillating lever (8);

a connecting rod (7);

a satellite gears.(12);

swinging bearing rings (13);

internal space cylindrical rotor openings (23, 25);

shafts (17, 20); and

a radial placed work cylinder (3); said radial placed work cylinder (3) further comprising:

a piston (6) having a longitudinal axis being perpendicular to an axis of a center of said elliptical rotary motor; said piston (6) placed inside said radial placed work cylinder (3) connected to connecting rod (7);

a work cylinder cap (4) having on a bottom side flattened surface and a ring shaped groove, being situated on a top side of said radial placed work cylinder (3) for closing said radial placed work cylinder (3), and having sealant grooves (5) on an upper surface to prevent leaking of fuel-air mixture and exhaust gases;

wherein said work cylinder cap (4) [[~~having~~]] has an upper cylinder shaped surface with a radius equal to said internal space cylindrical rotor (2), and in a vertical axis coaxial with a longitudinal axis of said radial placed work cylinder (3) [[~~having~~]] has an opening in the middle of said work cylinder;

wherein said piston (6) includes a dome shape matching an inner portion of said work cylinder cap (4), at least one groove for piston rings and moves cyclically as said internal space cylindrical rotor (2) rotates;

wherein said internal space cylindrical rotor (2), which is cylinder shaped, has an opening on an upper portion for receiving said radial placed work cylinder (3) having a longitudinal axis being perpendicular to the longitudinal axis of said internal space cylindrical rotor (2), and openings to the left and to the right side of

said radial placed work cylinder (3) for cooling; and has an opening on lower portion of said internal space cylindrical rotor (2) for receiving said satellite gears (12), said connecting axle (9), said oscillating lever (8) and said connecting rod (7); and

wherein on [[a]] the top side of said opening of said radial placed work cylinder (3), being perpendicular to the axis of said radial placed work cylinder (3), said flattened surface is for receiving said work cylinder cap (4) to close said radial placed work cylinder (3);

(c) inner tooth gears (11) being on lateral sides of said [[~~stator~~]] motor housing (1);

wherein said connecting axle (9) [[~~to which are~~]] connected said oscillating lever (8) and said connecting rod (7), is [[~~placed~~]] positioned in said opening on said lower portion of said internal space cylindrical rotor (2), under said radial placed work cylinder (3);

wherein said connecting axle (9) is with both ends connected to said satellite gears (12) [[~~;~~]] such that every point on a longitudinal axis of said connecting axle (9) during rotation of said internal space cylindrical rotor (2) moves cyclically along imagined closed ellipse curve defining mode of change of displacement of said work chamber of said radial placed work cylinder (3) as a function of change of angle of rotation of said internal space cylindrical rotor (2);

wherein said connecting rod (7) and said oscillating lever (8) are connected via needle bearing at a central portion of said connecting axle (9);

wherein said oscillating lever (8) [[~~has one end , which is shackle,~~]] shackingly connected to said connecting axle (9) on the left and on the right side of said connecting rod (7) on one end, and on the other end, [[~~of~~]] said

oscillating lever (8) has a pin (10) connected to the internal space cylindrical rotor opening (23) [[~~of said internal space cylindrical rotor (2)~~]];

wherein a distance between centers of openings of said oscillating lever (8) defines a slant of said imagined ellipse, a change of displacement of work chamber of said radial placed work cylinder (3), a different duration of work strokes, and simultaneously defines a starting position of motor mechanism;

wherein said satellite gears (12) are placed in said lower portion of said opening of said internal space cylindrical rotor (2) where said satellite gears (12) have, on the lateral sides, an opening located outside of the centers and an abeam tooth profile axis of their teeth, where position of said openings defines displacement of work chamber of the said elliptical rotary motor with internal combustion and where said openings serve for connection between said satellite gears (12) via said connecting axle (9) so said satellite gears (12) are parallel connected in position towards each other as in mirror image at distance which is sufficient for placement of said oscillating lever (8) and said connecting rod (7); [[~~and~~]]

wherein said satellite gears (12) have in centers of [[~~their~~]] the lateral sides an opening suited for resting on sleeve of said swinging bearing rings (13) where said swinging bearing rings (13) make possible rotation of said satellite gears (12) around their own axis and dictate that during rotation of said internal space cylindrical rotor (2); [[~~and~~]]

wherein said satellite gears (12) cyclically oscillate relative to rotating of said longitudinal axis of said radial placed work cylinder (3) [[~~therefore~~]] to define a position of said internal space cylindrical rotor (2) and said radial placed work

cylinder (3) and length of stroke of said piston (6) relative to said motor housing (1);

wherein said shafts (17, 20) of said internal space cylindrical rotor (2), being on the lateral sides of said radial placed work cylinder (3) are coaxial with t he longitudinal axis and form integral said internal space cylindrical rotor (2);

wherein said internal space cylindrical rotor openings (23, 25) [[~~of said internal space cylindrical rotor (2) having~~]] have a position relative to the center of rotation to define mode of change of displacement in said radial placed work cylinder (3) during work cycle;

wherein said inner tooth gears (11) are fastened to said motor housing (1) having center of pitch diameter offset relative to said longitudinal axis of said motor housing (1) by the horizontal and vertical eccentricity and [[~~where~~]] wherein said inner tooth gears (11) are geared in the ratio i=2 to said satellite gears (12) to define kinematic-geometric characteristics of said motor mechanism; and

d) deck-lids (18);

wherein said swinging bearing rings (13) have a ring shape with an inner diameter for mounting on said deck-lids (18); sleeves are relative to the centers [[,]] and positioned at the distance corresponding to a base half diameter of said satellite gears (12);

where said longitudinal axis of said swinging bearing rings (13) [[~~are~~]] is parallel to the axis of said sleeves which carry said satellite gears (12), and assures [[~~their~~]] a simultaneous rotating and oscillating motion;

wherein said deck-lids (18) at the centers have openings for bearings of said shaft (17) and said shaft (20) of said internal space cylindrical rotor (2); [[~~and~~]]

wherein said deck-lids (18) on [[~~the~~]] inner sides have eccentrically situated hubs, whose longitudinal axes are offset relatively to said longitudinal axis by the horizontal and vertical eccentricity as with said inner tooth gears (11); and [[~~on which are situated~~]]

wherein said swinging bearing rings (13) positioned onsaid deck-lids (18) [[, ~~which~~]] define a circular trajectory of said satellite gears (12).

13. (New) The elliptical rotary internal combustion motor according to claim 12 said motor housing (1) further comprising a fuel injector positioned in at least one opening (14) when said elliptical rotary internal combustion motor with internal combustion is [[~~operating as~~]] a diesel internal combustion motor.

14. (New) The elliptical rotary internal combustion motor according to claim 12, wherein n interconnected elliptic rotary internal combustion motors, serially connected in said axis of rotation of said internal space cylindrical rotor (2) and said longitudinal .axis of said radial placed work cylinder (3) phase offset by angle 360/n.